

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. **(Currently Amended)** An endoscopic imaging system comprising:
- an endoscope having an insertion unit which is insertable into an object, the insertion unit having an illumination optical system for illuminating the object and an objective optical system for forming an optical image of the illuminated object;
- an imaging apparatus having an imaging device for picking up the optical image and outputting [[a]] an image pick-up signal;
- a connector associated with the imaging apparatus;
- an elongate signal transmission line which connects the imaging apparatus and the connector for sending/receiving a signal to/from the imaging device;
- a video processing unit to which the ~~imaging apparatus connector~~ is detachably connected, the video processing unit including a signal processing circuit for generating a video signal from the image pick-up signal supplied via the signal transmission line and the connector and which processes the signal to produce a video signal;
- ~~a display for displaying images of the object according to the video signal;~~
- a synchronizing signal generation circuit, incorporated in the video processing unit, for generating a synchronizing signal;
- a timing signal generation circuit, incorporated in the ~~imaging apparatus connector~~, for generating a drive signal to drive the imaging device based on the synchronizing signal and inputting a timing signal to a sampling circuit for sampling the image pick-up signal ~~timing signals used to drive the imaging apparatus, the timing signals being supplied to the imaging device, the imaging device being driven based on the supplied timing signals; and~~
- a ~~common~~ phase adjustment circuit, incorporated in the connector, operable to change the phase of the drive signal and input the drive signal of which the phase has been changed to the imaging device via the signal transmission line for adjusting the phases of the timing signals so as to compensate for a signal delay occurring over a signal transmission line to which the imaging device is interchangeably linked and over which a signal is transmitted.

2. (Previously Presented) An endoscopic imaging system according to claim 1, wherein the phase adjustment circuit adjusts the phases of the timing signals so that an output signal of the imaging device to be input to the video processing unit will be in phase with a predetermined timing signal produced in the video processing unit.

3. (Canceled)

4. (Currently Amended) An endoscopic imaging system according to claim 2, wherein ~~the video processing unit has a sampling circuit which samples the signal; and~~ the phase adjustment circuit adjusts the phases of the timing signals according to a sampling timing of the sampling circuit.

5. (Previously Presented) An endoscopic imaging system according to claim 4, wherein at least one of the imaging apparatus and the video processing unit further has an analog-to-digital conversion circuit for digitizing an analog output signal of the imaging apparatus according to a timing signal generated by the timing signal generation circuit.

6. (Canceled)

7. (Previously Presented) An endoscopic imaging system according to claim 4, wherein at least one of the imaging apparatus and the video processing unit further has checking terminals used to check phase differences between the timing signals generated by the timing signal generation circuit and an output signal of the imaging device having passed through the signal transmission line.

8. (Canceled)

9. (Previously Presented) An endoscopic imaging system according to claim 4, wherein the phase adjustment circuit adjusts the phases of the timing signals by adjusting a resistance of a variable resistor.

10. (Previously Presented) An endoscopic imaging system according to claim 4, wherein the phase adjustment circuit adjusts the phases of the timing signals by adjusting an output voltage of an electronic voltage regulator.

11. (Previously Presented) An endoscopic imaging system according to claim 10, wherein the video processing unit has an electronic voltage regulator voltage setter for setting an output voltage of the electronic voltage regulator.

12. (Previously Presented) An endoscopic imaging system according to claim 4, wherein the phase adjustment circuit adjusts the phases of the timing signals by selecting one of a plurality of delay elements connected in tandem.

13. (Previously Presented) An endoscopic imaging system according to claim 4, wherein the phase adjustment circuit adjusts the phases of the timing signals by employing a delay device for producing a delay, of which the magnitude is varied depending on an applied voltage.

14. (Previously Presented) An endoscopic imaging system according to claim 4, wherein the endoscope is an optical endoscope having a propagation optical system for propagating the optical image, and the imaging apparatus is a TV camera mounted on the optical endoscope and having the imaging device, which picks up the optical image propagated by the propagation optical system, incorporated therein.

15. (Previously Presented) An endoscopic imaging system according to claim 4, wherein the endoscope is an electronic endoscope having the imaging device located at the

position of the image plane of the objective optical system, and the electronic endoscope has the imaging apparatus incorporated therein.

16. (Previously Presented) An endoscopic imaging system according to claim 4, wherein the phase adjustment circuit adjusts the phases of the timing signals, that is, a horizontal driving signal used to horizontally drive the imaging device and a reset signal used to reset the imaging device according to the sampling timing.

17. (Canceled)

18. (Currently Amended) An endoscopic imaging system comprising:
an optical endoscope having an insertion unit which is insertable into an object, the insertion unit having an illumination optical system for illuminating the object, an objective optical system for forming an optical image of the illuminated object, and a propagation optical system for propagating the optical image;

an imaging apparatus mounted on the optical endoscope and having an imaging device for picking up the optical image of the object propagated by the propagation optical system and outputting [[a]] an image pick-up signal;

a connector associated with the imaging apparatus;

an elongate signal transmission line which connects the imaging apparatus and the connector for sending/receiving a signal to/from the imaging device;

a video processing unit to which the ~~imaging apparatus~~ connector is detachably connected, the video processing unit including a signal processing circuit for generating a video signal from the image pick-up signal supplied via the signal transmission line and the connector and which processes the signal to produce a video signal;

a display means for displaying images of the object according to the video signal;

a synchronizing signal generation circuit, incorporated in the video processing unit, for generating a synchronizing signal;

a timing signal ~~generator~~ generation circuit, incorporated in the ~~imaging apparatus~~ connector, for generating a drive signal to drive the imaging device based on the synchronizing signal and inputting a timing signal to a sampling circuit for sampling the image pick-up signal
~~timing signals used to drive the imaging device, the timing signals being supplied to the imaging device, the imaging device being driven based on the supplied timing signals; and~~
a ~~common~~ phase adjustment circuit, incorporated in the connector, operable to change the phase of the drive signal and input the drive signal of which the phase has been changed to the imaging device via the signal transmission line for adjusting the phases of the timing signals so as to compensate for a signal delay occurring over a signal transmission line to which the imaging device is interchangeably linked and over which a signal is transmitted.

19. (Canceled)

20. (Currently Amended) An endoscopic imaging system according to claim ~~[[19]]~~18, wherein the connector unit has the timing signal generation circuit and the phase adjustment circuit.

21. (Currently Amended) An endoscopic imaging system according to claim ~~[[19]]~~18, wherein the camera head has the timing signal generation circuit and the phase adjustment circuit.

22. (Currently Amended) An endoscopic imaging system comprising:
an electronic endoscope having an insertion unit which is insertable into an object, the insertion unit having an illumination optical system for illuminating the object, an objective optical system for introducing an optical image of the illuminated object, and an imaging device located at the position of the image plane of the objective optical system for picking up the optical image and outputting ~~[[a]]~~ an image pick-up signal;
a connector associated with the electronic endoscope;
an elongate signal transmission line which connects the electronic endoscope and the connector for sending/receiving a signal to/from the imaging device;

a video processing unit to which the ~~electronic endoscope~~ connector is detachably connected, the video processing unit including a signal processing circuit for generating a video signal from the image pick-up signal supplied via the signal transmission line and the connector and which processes the signal to produce a video signal;

~~a display for displaying images of the object according to the video signal;~~

a synchronizing signal generation circuit, incorporated in the video processing unit, for generating a synchronizing signal;

a timing signal ~~generator~~ generation circuit, incorporated in the ~~electronic endoscope connector~~, for generating a drive signal to drive the imaging device based on the synchronizing signal and inputting a timing signal to a sampling circuit for sampling the image pick-up signal ~~timing signals used to drive the imaging device, the timing signals being supplied to the imaging device, the imaging device being driven based on the supplied timing signals; and~~

a common phase adjustment circuit, incorporated in the connector, operable to change the phase of the drive signal and input the drive signal of which the phase has been changed to the imaging device via the signal transmission line for adjusting the phases of the timing signals so as to compensate for a signal delay occurring over a signal transmission line to which the imaging device is interchangeably linked and over which a signal is transmitted.

23. - 25. (Canceled)

26. (Currently Amended) An endoscope system comprising:

first and second endoscopes each having an insertion unit which is insertable into an object, each insertion unit having an illumination optical system for illuminating the object and an objective optical system for ~~introducing~~ forming an optical image of the illuminated object;

first and second imaging apparatuses having first and second imaging devices for picking up first and second optical images produced by the first and second endoscopes, respectively, and outputting first and second image pick-up signals, respectively;

first and second connectors associated with the first and second imaging apparatuses, respectively;

elongate signal transmission lines which connects the first and second imaging apparatuses and the first and second connectors, respectively, for sending/receiving signals to/from the first and second imaging devices, respectively;

a video processing unit to which the first and second ~~imaging apparatuses~~ connectors are selectively detachably connected, the video processing unit including a signal processing circuit for generating video signals from the image pick-up signals supplied via the signal transmission lines and the connectors ~~and which processes the first and second signals to produce a video signal;~~

~~a display means for displaying images of the object according to the video signal;~~

a synchronizing signal generation circuit, incorporated in the video processing unit for generating a synchronizing signal;

timing signal generation circuits, incorporated in the first and second connectors, respectively, for generating drive signals to drive the first and second imaging devices based on the synchronizing signals and inputting timing signals to a sampling circuit for sampling the image pick-up signals; and

phase adjustment circuit, incorporated in the first and second connectors, respectively, operable to change the phases of the drive signals and input the drive signals of which the phases have been changed to the first and second imaging device, respectively, via the signal transmission lines.

~~first and second timing signal generator circuits, respectively incorporated in the first and second imaging apparatuses, for generating timing signals used to drive the imaging devices, the timing signals being supplied to the imaging device, the imaging device being driven based on the supplied timing signals; and~~

~~first and second phase adjustment circuits for adjusting the phases of the timing signals so as to compensate for signal delays occurring over first and second signal transmission lines to which the first and second imaging devices are interchangeably linked and over which a signal is transmitted.~~

27. (Previously Presented) An endoscope system according to claim 26, wherein the first and second imaging apparatuses have the first and second signal transmission lines of mutually different lengths extended therefrom.

28. (Previously Presented) An endoscopic imaging system according to claim 26, wherein the first and second imaging apparatuses have the first and second imaging devices that offer mutually different numbers of pixels.

29. (Previously Presented) An endoscopic imaging system according to claim 26, wherein the first and second imaging apparatuses have the first and second timing signal generation circuits and the first and second phase adjustment circuits located at mutually different positions on the first and second signal transmission lines linking the first and second imaging devices and the video processing unit.

30. (Currently Amended) An endoscope system comprising:
an endoscope having an insertion unit which is insertable into an object, the insertion unit having an illumination optical system for illuminating the object and an objective optical system for forming an optical image of the illuminated object;

an imaging device for picking up the optical image by the endoscope and outputting a signal to a video processing unit which processes the signal in order to pick up the optical image ~~obtained by the endoscope and output a video~~ an image pick-up signal;

a video processing unit which processes the image pick-up signal;

a connecting portion to operable to electrically and detachably connect the imaging device to the video processing unit;

an elongate signal transmission line which electronically connects the imaging device and the connecting portion for transmitting a signal between the imaging device and the video processing unit;

a synchronizing signal generation circuit, incorporated in the video processing unit, for generating a synchronizing signal;

a timing signal generation circuit, incorporated in the connecting portion, for generating a drive signal to drive the imaging device based on the synchronizing signal and inputting a timing signal to a sampling circuit for sampling the image pick-up signal~~-generator circuit for generating timing signals used to drive the imaging device, the timing signals being supplied to the imaging device; and~~

a ~~common~~ phase adjustment circuit, incorporated in the connecting portion, operable to change the phase of the drive signal and input the drive signal of which the phase has been changed to the imaging device via the signal transmission line for adjusting the phases of the timing signals ~~so as to compensate for a signal delay occurring over a signal transmission line to which the imaging device is interchangeably linked and over which a signal is transmitted.~~

31. (Currently Amended) An endoscope system according to claim 30, wherein the endoscope is an electronic endoscope in which the imaging device is provided in the insertion unit and which includes the connecting portion~~-a connector unit that is detachably coupled to the video processing unit, and~~

the imaging device is electrically connected to the video processing unit by having the endoscope connected to the video signal processing unit.

32. (Canceled)

33. (Previously Presented) An endoscope system according to claim 32, wherein the phase adjustment circuit adjusts the phase of the timing signal according to the timing of a sampling signal which samples signals from the imaging device.

34. (Currently Amended) An endoscope system according to claim 30, wherein the endoscope is an optical endoscope which further comprises a propagation optical system for propagating the optical image,

the imaging device ~~is provided in an imaging apparatus which picks up the optical image propagated by the propagation optical system and which includes a connector unit that is~~

~~detachably coupled to the video processing unit~~ is provided in the imaging apparatus including the connection portion, and

the imaging device is electrically connected to the video processing unit by having the imaging apparatus connected to the video processing unit.

35. (Canceled)

36. (Previously Presented) An endoscope system according to claim 35, wherein the phase adjustment circuit adjusts the phase of the timing signal according to the timing of a sampling signal which samples signals from the imaging device.

37. (New) An image apparatus comprising:

- an imaging means having an imaging device for picking up an image of an object and generating an image pick-up signal;
- a connector associated with the imaging means;
- a signal transmission line which connects the imaging means and the connector for sending/receiving a signal to/from the imaging device;
- a timing signal generation circuit, incorporated in the connector, for inputting a synchronizing signal from a video processing unit detachably attached to the connector to generate a drive signal to drive the imaging device and input a timing signal to a sampling circuit for sampling the image pick-up signal; and
- a phase adjustment circuit, incorporated in the connector, operable to change the phase of the drive signal and input the drive signal of which the phase has been changed to the imaging device via the signal transmission line.